

IN THE CLAIMS:

1. (Original) A liquid crystal display, comprising:
 - a black matrix layer on a first substrate having a control circuit thereon, and a plurality of openings in the black matrix layer to expose the first substrate;
 - a color filter layer on the black matrix layer, which is composed of a plurality of color filter sheets respectively aligning with each opening;
 - a pixel electrode layer on the color filter sheets, which is composed of a plurality of pixel electrodes respectively aligning with each color filter sheet;
 - a plurality of photoresist spacers on the pixel electrode layer, which are located on portions of areas covered by the black matrix layer;
 - a liquid crystal layer on the pixel electrode layer, which fill space among the photoresist spacers;
 - a common electrode on the liquid crystal layer and the photoresist spacers; and
 - a second substrate on the common electrode.
2. (Original) The liquid crystal display of Claim 1, wherein a color of the color filter sheets is red, green or blue.
3. (Original) The liquid crystal display of Claim 1, wherein a material of the pixel electrodes comprises indium tin oxide.
4. (Original) The liquid crystal display of Claim 1, wherein a material of the common electrode comprises indium tin oxide.

5. (Original) The liquid crystal display of Claim 1, wherein a hardness of the photoresist spacers is about 2H to about 4H.

6. (Original) The liquid crystal display of Claim 1, wherein a height of the photoresist spacers is about 1 to about 10 μm .

7. (Original) The liquid crystal display of Claim 1, wherein a material of the photoresist spacer comprises acrylic resin.

8. (Original) The liquid crystal display of Claim 1, wherein a material of the photoresist spacer comprises epoxy-resin.

9. (Cancelled) A method of forming a liquid crystal, the method comprises:
forming a black matrix layer on a first substrate having a control circuit thereon;
forming a plurality of openings in the black matrix layer to expose the first substrate;
forming a color filter layer on the black matrix layer;
forming a plurality of pixel electrodes on the color filter to respectively align with each of the openings;
forming a plurality of photoresist spacers on the first substrate to be located on portions of areas covered by the black matrix;
parallel assembling the first substrate and a second substrate having a common electrode thereon, wherein the photoresist spacers and the common electrode are between the first substrate and the second substrate; and

forming a liquid crystal layer between the first substrate and the second substrate.

10. (Cancelled) The method of Claim 9, wherein a method of forming the photoresist spacers comprises:

forming a photoresist layer covering the pixel electrodes; and

patterning the photoresist layer to form the photoresist spacers.

11. (Cancelled) The method of Claim 10, wherein the patterning method comprises exposure-developing.

12. (Cancelled) The method of Claim 10, wherein the patterning method comprises exposure-etching.

13. (Cancelled) The method of Claim 9, wherein a hardness of a material used to form the photoresist spacers is about 2H to about 4H.

14. (Cancelled) The method of Claim 9, wherein a height of the photoresist spacers is about 1 to about 10 μm .

15. (Cancelled) The method of Claim 9, wherein a material used to form the photoresist spacers comprises acrylic resin.

16. (Cancelled) The method of Claim 9, wherein a material used to form the photoresist spacers comprises epoxy-resin.

17. (Cancelled) A method of forming a liquid crystal display, the method comprising:

forming a black matrix layer on a first substrate having a control circuit thereon;
forming a plurality of openings in the black matrix layer to expose the first substrate;
forming a color filter layer on the black matrix layer;
forming a plurality of pixel electrodes on the color filter layer to respectively align with each of the openings;

forming a plurality of photoresist spacers on a second substrate having a common electrode thereon;

parallel assembling the first substrate and the second substrate, wherein the photoresist spacers and the pixel electrodes are between the first substrate and the second substrate; and

forming a liquid crystal layer between the first substrate and the second substrate.

18. (Cancelled) The method of Claim 17, wherein a method of forming the photoresist spacers comprises:

forming a photoresist layer covering the common electrode; and
patterning the photoresist layer to form the photoresist spacers.

19. (Cancelled) The method of Claim 18, wherein the patterning method comprises exposure-developing.

20. (Cancelled) The method of Claim 18, wherein the patterning method comprises exposure-etching.

21. (Cancelled) The method of Claim 17, wherein a hardness of a material used to form the photoresist spacers is about 2H to about 4H.

22. (Cancelled) The method of Claim 17, wherein a height of the photoresist spacers is about 1 to about 10 μm .

23. (Cancelled) The method of Claim 17, wherein a material used to form the photoresist spacers comprises acrylic resin.

24. (Cancelled) The method of Claim 17, wherein a material used to form the photoresist spacers comprises epoxy-resin.

25. (Currently Amended) A liquid crystal display, comprising:
a first substrate having a control circuit thereon;
a black matrix layer on the first substrate, and a plurality of openings located therein;
a color filter layer on the black matrix layer, which is composed of a plurality of color filter sheets respectively aligning with each opening;
a plurality of photoresist spacers on the color filter layer, which are located on portions of areas covered by the black matrix layer;

a plurality of pixel electrodes respectively on each of the color filter sheets, of which a height is lower than a height of the photoresist spacers;

a liquid crystal layer on the pixel electrodes, which fill space among the photoresist spacers;

a common electrode on the liquid crystal layer and the photoresist spacers; and

a second substrate on the common electrode.

26. (Original) The liquid crystal display of Claim 25, wherein a color of the color filter sheets is red, green or blue.

27. (Original) The liquid crystal display of Claim 25, wherein a material of the pixel electrodes comprises indium tin oxide.

28. (Original) The liquid crystal display of Claim 25, wherein a material of the common electrode comprises indium tin oxide.

29. (Original) The liquid crystal display of Claim 25, wherein a hardness of the photoresist spacers is about 2H to about 4H.

30. (Original) The liquid crystal display of Claim 25, wherein a height of the photoresist spacers is about 1 to about 10 μm .

31. (Original) The liquid crystal display of Claim 25, wherein a material of the photoresist spacers comprises acrylic resin.

32. (Original) The liquid crystal display of Claim 25, wherein a material of the photoresist spacers comprises epoxy-resin.

33. (Original) The liquid crystal display of Claim 25, wherein the photoresist spacers comprise color photoresist spacers.

34. (Original) The liquid crystal display of Claim 25, wherein the photoresist spacers are composed of a plurality of stacked color photoresist.

35. (Cancelled) A method of forming a liquid crystal display, comprising:
forming a black matrix layer on a first substrate having a control circuit thereon;
forming a plurality of openings in the black matrix layer to expose the first substrate;
forming a color filter layer on the black matrix layer;
forming a plurality of photoresist spacers on portions of areas covered by the black matrix layer;
forming a plurality of pixel electrodes on the color filter layer to respectively align with each of the openings;
parallel assembling the first substrate and a second substrate having a common electrode thereon, wherein the photoresist spacers and the common electrode are between the first substrate and the second substrate; and

forming a liquid crystal layer between the first substrate and the second substrate.

36. (Cancelled) The method of Claim 35, wherein a method of forming the photoresist spacers comprises:

forming a photoresist layer covering the color filter layer; and

patterning the photoresist layer to form the photoresist spacers.

37. (Cancelled) The method of Claim 36, wherein the patterning method comprises exposure-developing.

38. (Cancelled) The method of Claim 36, wherein the patterning method comprises exposure-etching.

39. (Cancelled) The method of Claim 35, wherein a hardness of a material used to form the photoresist spacers is about 2H to about 4H.

40. (Cancelled) The method of Claim 35, wherein a height of the photoresist spacers is about 1 to about 10 μm .

41. (Cancelled) The method of Claim 35, wherein a method of forming the pixel electrodes comprising:

forming a transparent conductive layer on the color filter layer and the photoresist spacers; and

removing portions of the transparent conductive layer on the photoresist spacers.

42. (Cancelled) The method of Claim 41, wherein the removal method comprises photolithography-etching.

43. (Cancelled) A method of forming a liquid crystal display, comprising:
forming a black matrix layer on a first substrate having a control circuit thereon;
forming a plurality of first, second and third openings in the black matrix layer to expose the first substrate;
forming a first color photoresist on the first substrate;
patterning the first color photoresist to form a plurality of first filter sheets respectively aligning with each of the first openings and a plurality of first spacers located on portions of areas covered by the black matrix;
forming a second color photoresist on the first substrate;
patterning the second color photoresist to form a plurality of second filter sheets respectively aligning with each of the second openings and a plurality of second spacers respectively stacking on the first spacers;
forming a third color photoresist on the first substrate;
patterning the third color photoresist to form a plurality of third filter sheets respectively aligning with each of the third openings and a plurality of third spacers respectively stacking on the second spacers;
forming a plurality of pixel electrodes respectively on the first, second and third filter sheets;

parallel assembling the first substrate and a second substrate having a common electrode thereon, wherein the photoresist spacers and the common electrode are between the first substrate and the second substrate; and
forming a liquid crystal layer between the first substrate and the second substrate.

44. (Cancelled) The method of Claim 43, wherein a method of forming the pixel electrodes comprising:

forming a transparent conductive layer on the first, second and third filter sheets and the third spacers; and

removing portions of the transparent conductive layer on the third spacers.

45. (Cancelled) The method of Claim 44, wherein the removal method comprises photolithography-etching.

46. (Currently Amended) A liquid crystal display, comprising:
a first substrate having a control circuit thereon;
a color filter ~~layers~~ layer on the first substrate, which ~~are~~ is composed of a plurality of color filter sheets;
a plurality of pixel electrodes respectively aligning with each of the color filter sheets;
a black matrix layer on the pixel electrodes, which are located around the pixel electrodes;
a plurality of photoresist spacers on portions of the black matrix layer;

a liquid crystal layer on the pixel electrodes and the black matrix layer, which fill space among the photoresist spacers;

a common electrode on the liquid crystal layer and the photoresist spacers; and

a second substrate on the common electrode.

47. (Original) The liquid crystal display of Claim 46, wherein a color of the color filter sheets is red, green or blue.

48. (Original) The liquid crystal display of Claim 46, wherein a material of the pixel electrodes comprises indium tin oxide.

49. (Original) The liquid crystal display of Claim 46, wherein a material of the common electrode comprises indium tin oxide.

50. (Original) The liquid crystal display of Claim 46, wherein a hardness of the photoresist spacers is about 2H to about 4H.

51. (Original) The liquid crystal display of Claim 46, wherein a height of the photoresist spacers is about 1 to about 10 μm .

52. (Original) The liquid crystal display of Claim 46, wherein a material of the photoresist spacer comprises acrylic resin.

53. (Original) The liquid crystal display of Claim 46, wherein a material of the photoresist spacer comprises epoxy-resin.

54. (Currently Amended) The liquid crystal display of Claim 46, wherein a height of the black matrix layer is about 0.1 to 6 μm .

55. (Cancelled) A method of forming a liquid crystal display, comprising:
forming a color filter layer on a first substrate having a control circuit thereon, which is composed of a plurality of color filter sheets;
forming a plurality of pixel electrodes on the color filter sheets, which respectively align with each of the color filter sheets;
forming a black matrix layer on the pixel electrodes, which are located around the pixel electrodes;
forming a plurality of photoresist spacers on a second substrate having a common electrode thereon;
parallel assembling the first substrate and the second substrate, wherein the photoresist spacers and the black matrix are between the first substrate and the second substrate and are aligned with each other; and
forming a liquid crystal layer between the first substrate and the second substrate.

56. (Cancelled) The method of Claim 55, wherein method of forming the photoresist spacers comprises:

forming a photoresist layer covering the common electrode; and

patterning the photoresist layer to form the photoresist spacers.

57. (Cancelled) The method of Claim 56, wherein the patterning method comprises exposure-developing.

58. (Cancelled) The method of Claim 56, wherein the patterning method comprises exposure-etching.

59. (Cancelled) The method of Claim 55, wherein a hardness of a material used to form the photoresist spacers is about 2H to about 4H.

60. (Cancelled) The method of Claim 55, wherein a height of the photoresist spacers is about 1 to about 10 μm .

61. (Cancelled) The liquid crystal display of Claim 55, wherein a material used to form the photoresist spacer comprises acrylic resin.

62. (Cancelled) The liquid crystal display of Claim 55, wherein a material used to form the photoresist spacer comprises epoxy-resin.

63. (Cancelled) The liquid crystal display of Claim 55, wherein a height of the black matrix is about 0.1 to about 6 μm .